



# PUBLIC ATTITUDES TO NUCLEAR POWER

Report  
January 16, 2023

**ENVIRONICS**  
RESEARCH

# TABLE OF CONTENTS

RESEARCH OBJECTIVE .....	3
METHODOLOGY .....	4
EXECUTIVE SUMMARY .....	5
VIEWS ABOUT NUCLEAR AND NET ZERO .....	8
KNOWLEDGE AND INFORMATION SOURCES .....	18
MESSAGING AND TRUSTED SOURCES .....	26
SEGMENT PROFILES .....	32

# Where does the Canadian public see nuclear power fitting in a net zero world?

The Canadian Nuclear Association has been tracking public attitudes towards nuclear power over the past several years, to support public-facing communications. This 2022 research takes a more strategic approach to also inform internal decision-making and provide a basis for measuring progress over time.

# RESEARCH METHODS

**This report is based on an online survey conducted with a representative sample of 2,592 Canadians (18 or older), conducted from October 17 – 31, 2022.**

The sample was stratified by province as outlined in the table below, to ensure adequate subsamples for analysis of smaller regions. In particular, oversamples were conducted in Alberta and Saskatchewan to be able to confidently report on those provinces given their recent interest in or commitments to nuclear power. Quotas were also used to ensure the sample was representative by age, gender and household income. At the analysis stage, the data was weighted to ensure the final sample reflects the actual distribution of the Canadian population per 2021 Census data.

Because the survey uses a non-probability sample, no margin of sampling error can be calculated.

	Total	BC	AB	SK	MB	ON	QC	ATL
Sample size (unweighted/actual)	2,592	403	405	409	152	580	459	184
Sample size (weighted)	2,592	352	300	80	94	1,000	598	169
Population (%) per Census	100%	14%	12%	3%	4%	39%	23%	7%

# EXECUTIVE SUMMARY

# KEY INSIGHTS

- 1 Fewer than half of Canadians accurately perceive nuclear as a low source of carbon emissions.** This clearly factors into the level of support for using nuclear energy as an electricity source for Canada, which is much more mixed (47% support, 39% opposed, 14% not sure) than for other sources more widely associated with low emissions, such as solar, wind and hydroelectric.
- 2 There is majority support for nuclear being part of the energy mix to reach net zero, although not necessarily on par with renewables.** Almost two thirds (64%) say nuclear should play a role in Canada's attempts to achieve net zero – but this includes only one in three (33%) who say it should have a major role equal to renewables. Moreover, telling respondents about nuclear's position as the second largest source of low carbon electricity in Canada, and about its reliability compared to renewables, does not result in an increased belief that Canada needs nuclear alongside renewables (58%).
- 3 Part of the reason for the “stickiness” of these opinions is that nuclear's low carbon status does not appear sufficient to displace safety and security concerns.** Especially among those opposed to nuclear power overall, but even among those moderately in support, there are widespread concerns about the storage and management of nuclear waste (87% and 71% concerned, respectively) and limited confidence in how it is regulated (18% and 50% confident, respectively). Opponents also express concerns about the possibility of a nuclear accident (85%) and the environmental impacts of nuclear energy (77%). Notably these concerns outweigh logistical concerns about the cost and timeliness of building new plants. Thus, future public-facing communications continue to need to address the longstanding frames through which many view nuclear energy.

# KEY INSIGHTS

- 4 There is considerable room for improvement in how women view nuclear energy.** Despite the fact that women are more concerned about climate change (which should make them naturally inclined towards low-carbon energy sources), their safety concerns and relative lack of knowledge about nuclear energy hold them back – they represent six in ten opponents to nuclear energy, compared to only one-third of supporters. Importantly, they are also relatively more trusting of the nuclear information provided by environmental groups. Since men are already largely in favour of nuclear, they represent limited growth potential; thus, it will be challenging to improve nuclear’s public image without getting more women on side.
- 5 The results suggest that small modular reactors and medical innovations driven by nuclear may offer potential for shifting views about nuclear energy.** Currently there is very limited awareness of SMRs (60% never heard of them; another quarter heard of them but know nothing about them). When SMRs are described in terms of their smaller footprint, improved affordability and enhanced safety, support for their development remained roughly on par with overall nuclear support, but some opponents instead became uncertain as to their views (suggesting potential openness to the concept). As well, almost half of Canadians – and an equal number of women to men - feel more positive about nuclear energy upon hearing about its medical uses.
- 6 Saskatchewan, together with Ontario and Alberta, stands out for its notably positive views about nuclear.** Although we cannot know from this survey whether this favourable attitude preceded or resulted from recent discussions about Saskatchewan’s nuclear investments, it appears most SK residents are on board with the direction their provincial government is heading.

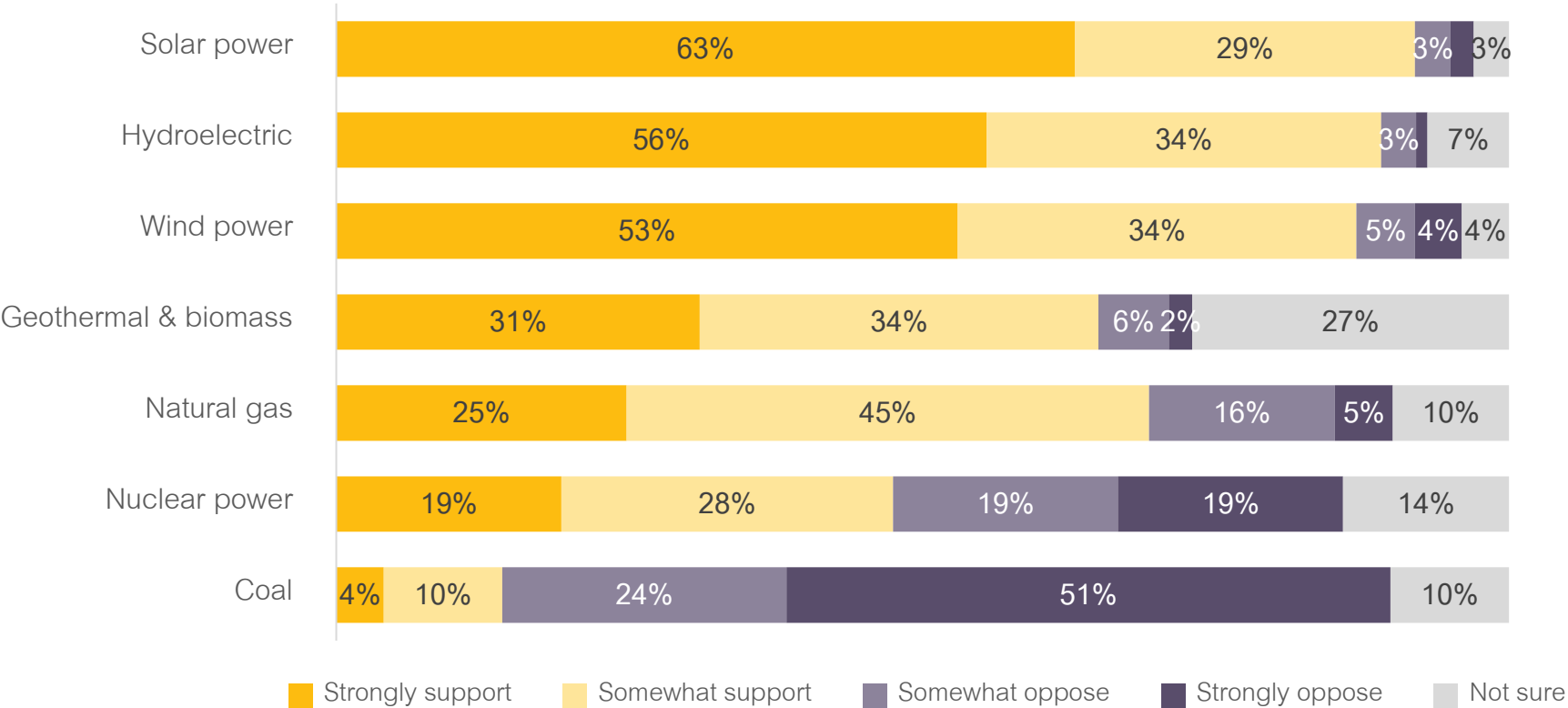
# VIEWS ABOUT NUCLEAR AND NET ZERO



# Overall Views | Support for electricity sources

There is a broad consensus of support for solar, hydroelectric and wind power. There is less certainty about geothermal & biomass, natural gas and nuclear power. In particular, views about nuclear power are very mixed, with one in five each most supportive or most opposed, close to half (47%) falling in the middle, and another 14 percent who are uncertain.

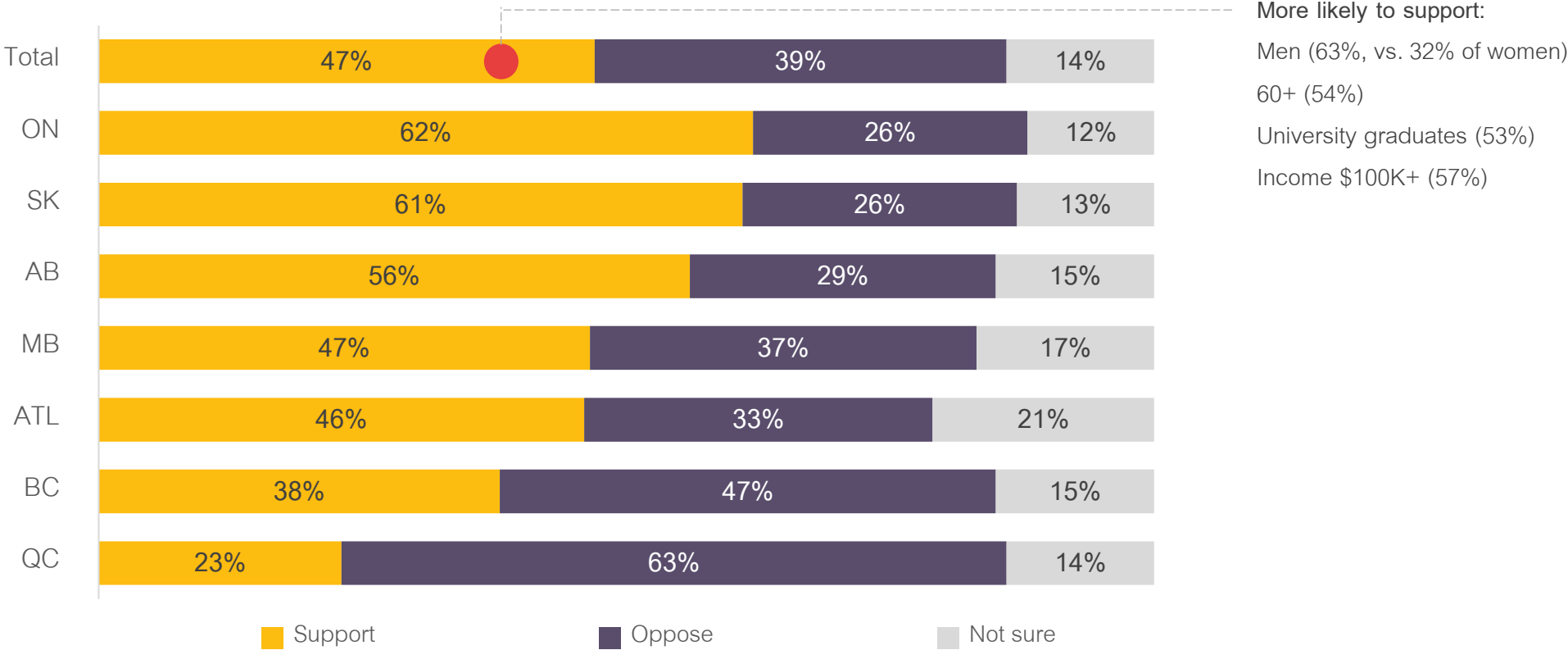
Q9-15 Do you support or oppose each of the following as a way of providing electricity for Canada?



# Overall Views | Support for nuclear by province

Majorities in Ontario, Saskatchewan and Alberta, as well as pluralities in Manitoba and the Maritimes, support nuclear power. A majority of Quebecers oppose it. Support for nuclear power is higher among men, older Canadians and those with higher education and incomes, a demographic pattern that is consistent throughout the results.

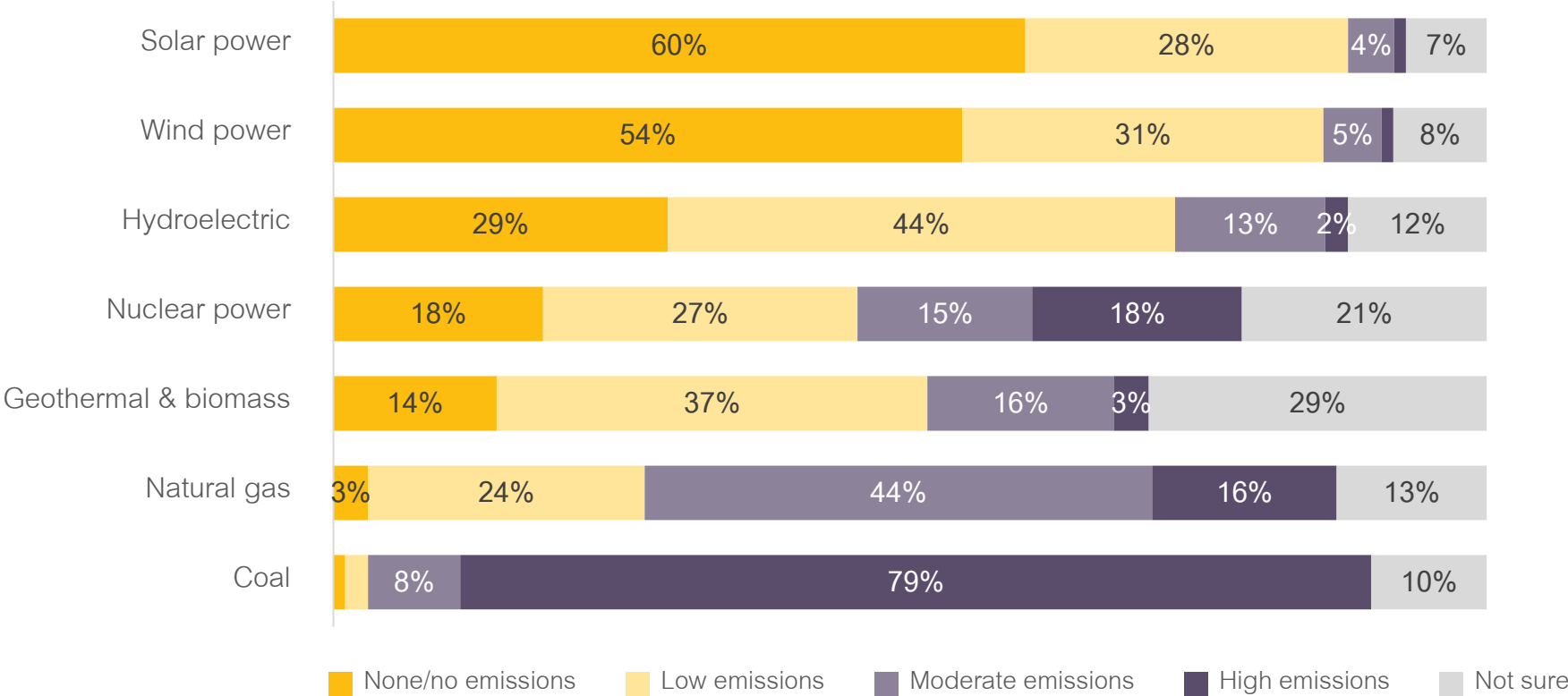
Q9 Do you support or oppose each of the following as a way of providing electricity for Canada? Nuclear power



# Overall Views | **Level of carbon emissions produced**

In general, the perceived level of carbon emissions maps closely to support for the energy source: the more the source is seen as clean, the higher the support for using it for electricity. Fewer than half accurately perceive nuclear as no/low emissions, and a sizeable minority (21%) are unsure about its status (second only to geothermal & biomass).

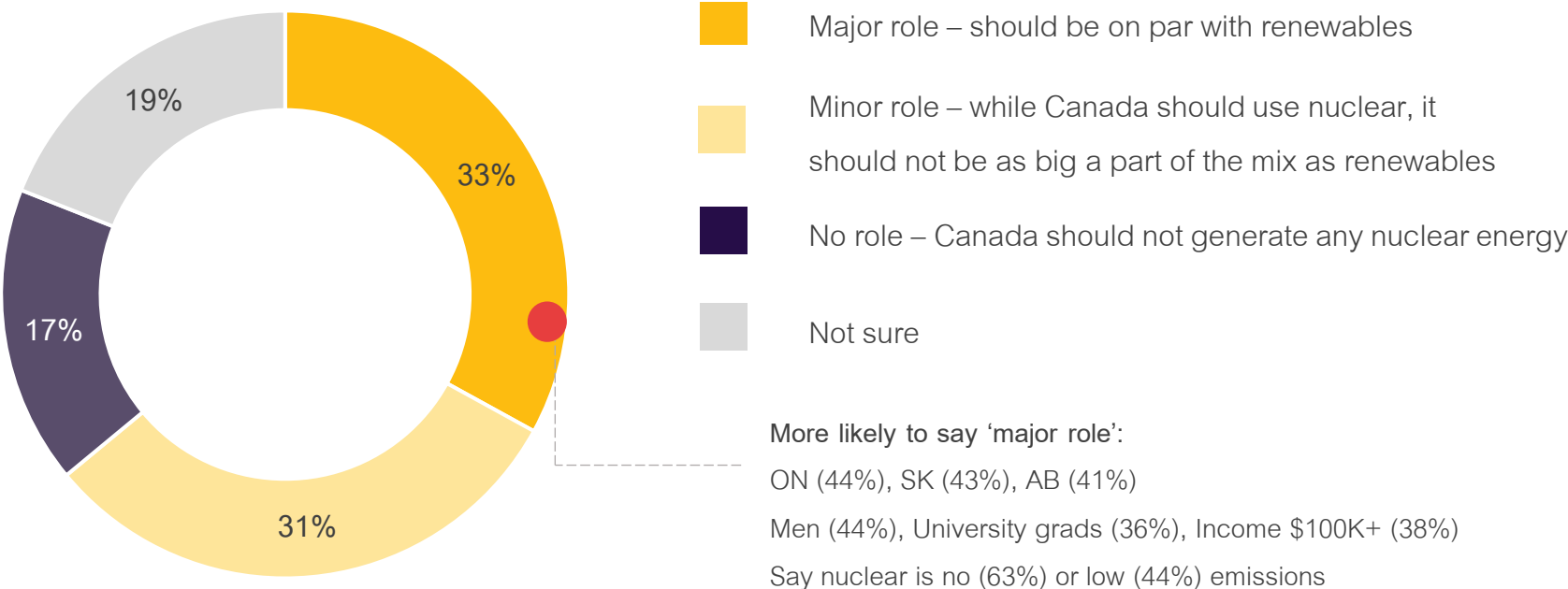
Q16-22 What level of carbon emissions do you think is produced by each of the following forms of energy? (Carbon emissions are greenhouse gases that cause climate change).



# Overall Views | **Role for nuclear in reaching net zero**

Almost two-thirds of Canadians say nuclear should play a role in Canada’s efforts to reach net zero, including one-third who say it should be a major role on par with renewables – a proportion that is considerably higher among those who know nuclear as a no/low carbon-emitting source.

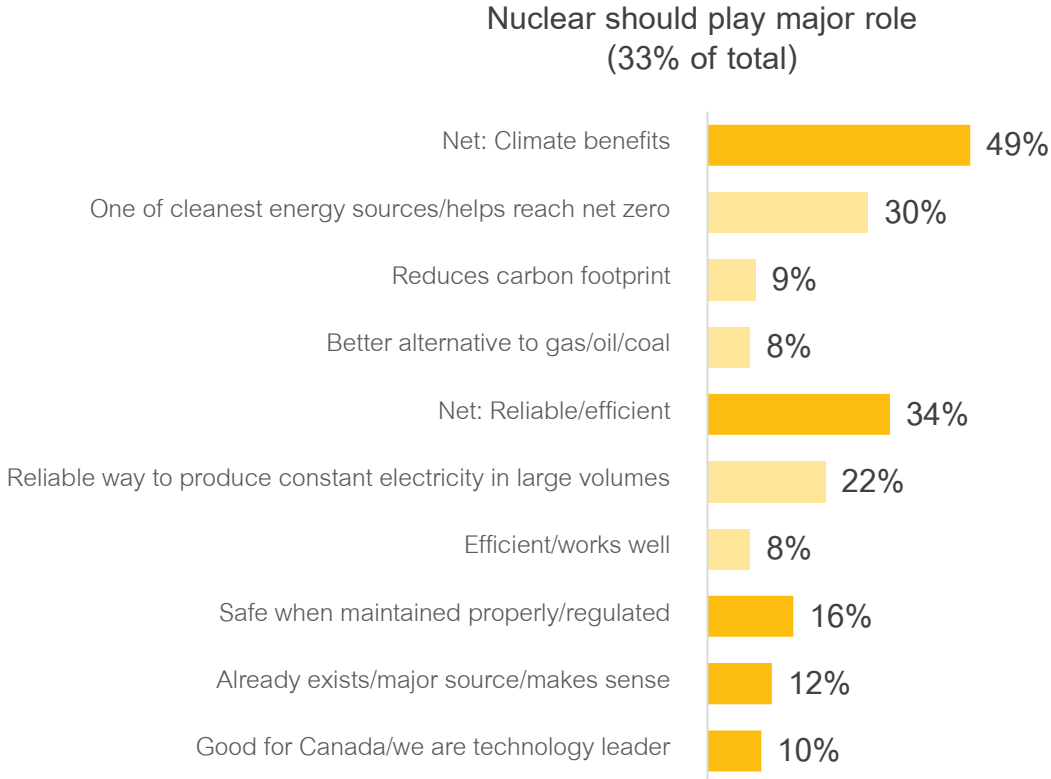
*Q23 Canada has committed to a carbon emissions reduction target of “net zero” by 2050. “Net zero” means reducing Canada’s total carbon emissions (by reducing the production and use of fossil fuels like oil, gas and coal) to the extent possible, with the remainder offset by initiatives to remove carbon (through carbon-capture technologies or natural systems like forests), resulting in a sum total of zero net emissions. How much of a role, if any, do you think nuclear energy should play in attempts to reach net zero in Canada?*



# Overall Views | **Reasons for major role in net zero**

The view that nuclear should play a major role in attempting to reach net zero is driven by understanding of its climate benefits and that it is a reliable and constant electricity source.

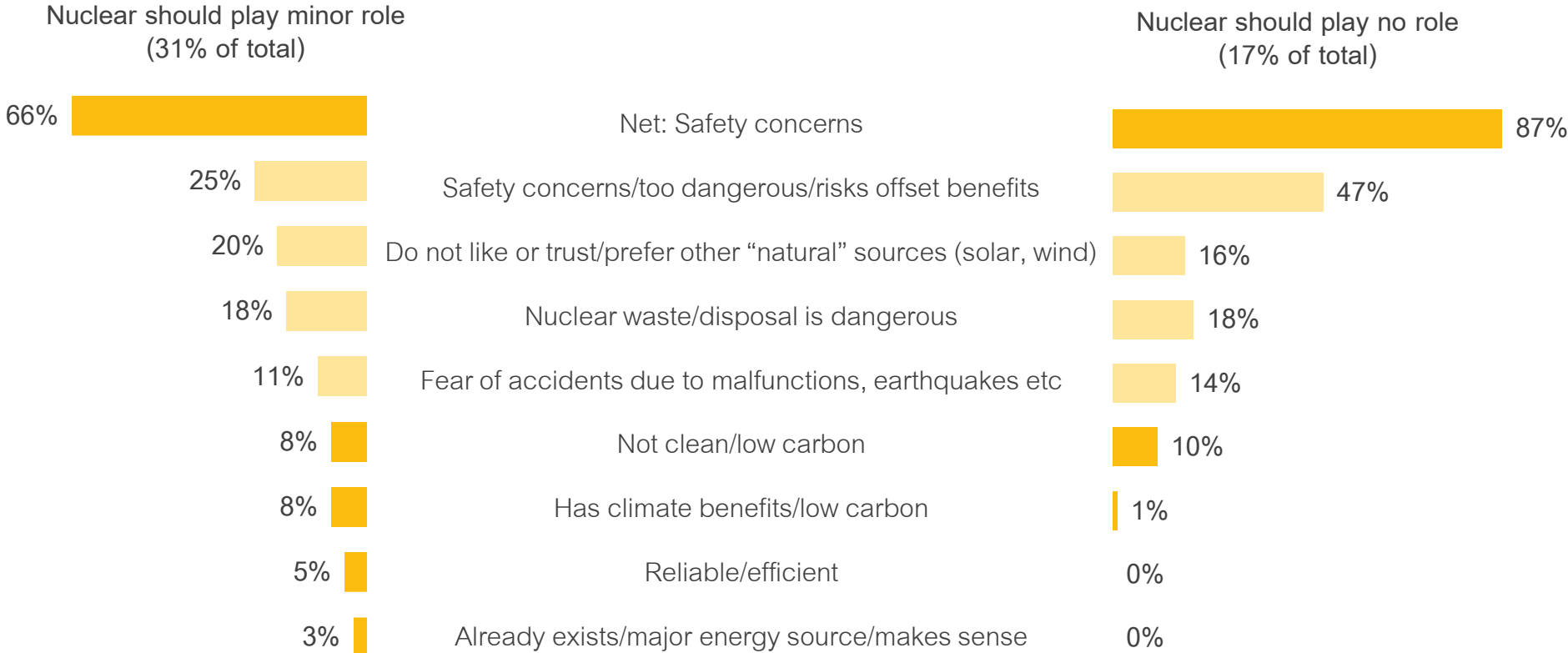
Q24 Why do you say nuclear energy should play [a major/a minor/no] role in attempts to reach net zero in Canada?



# Overall Views | **Reasons for minor or no role in net zero**

Safety concerns factor widely into the perspective that nuclear energy should play only a minor role or no role at all in Canada’s attempts to reach net zero.

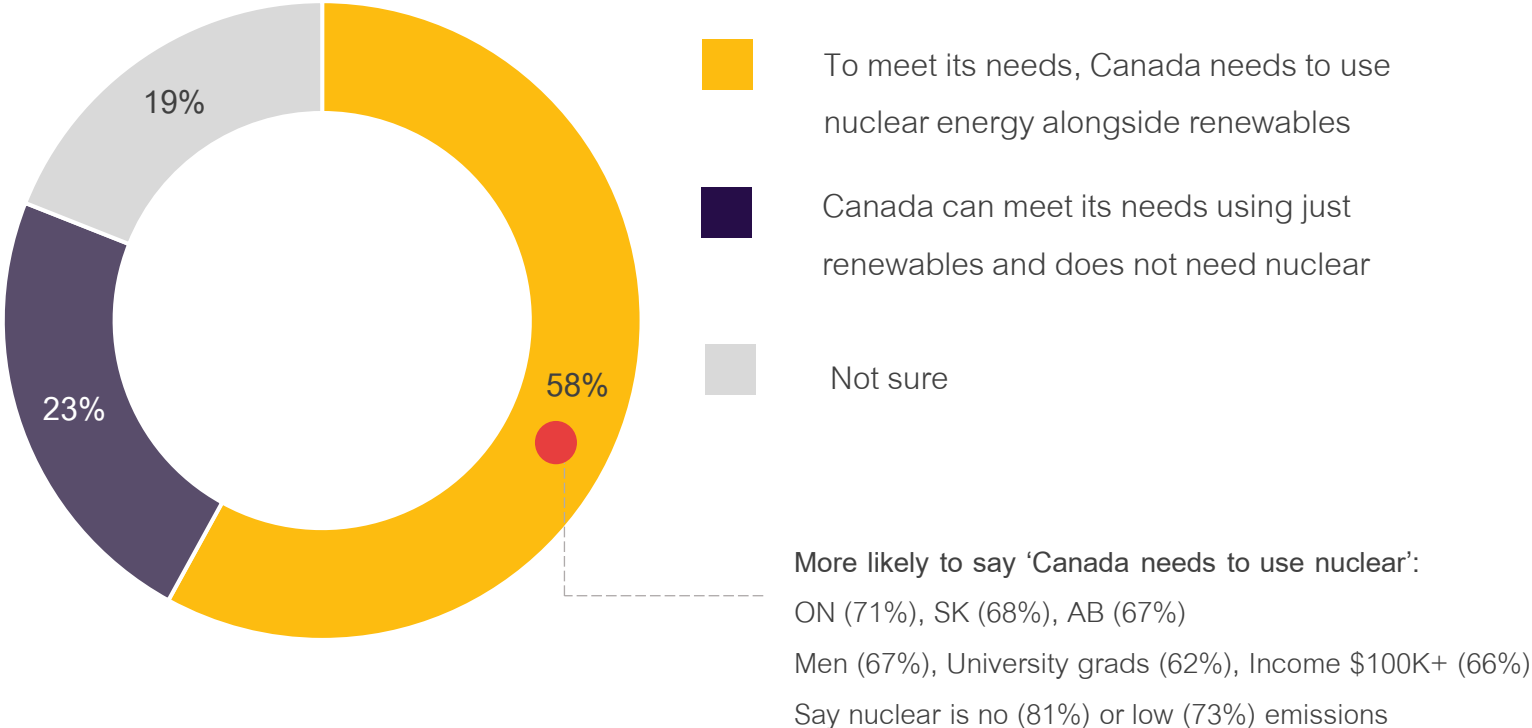
Q24 Why do you say nuclear energy should play [a major/a minor/no] role in attempts to reach net zero in Canada?



# Overall Views | **Role for nuclear knowing it is low carbon**

Interestingly, telling respondents about nuclear’s status as the second-largest source of low carbon electricity in Canada, and about its reliability, does not generate an increased proportion who believe Canada needs nuclear alongside renewable energy (58%).

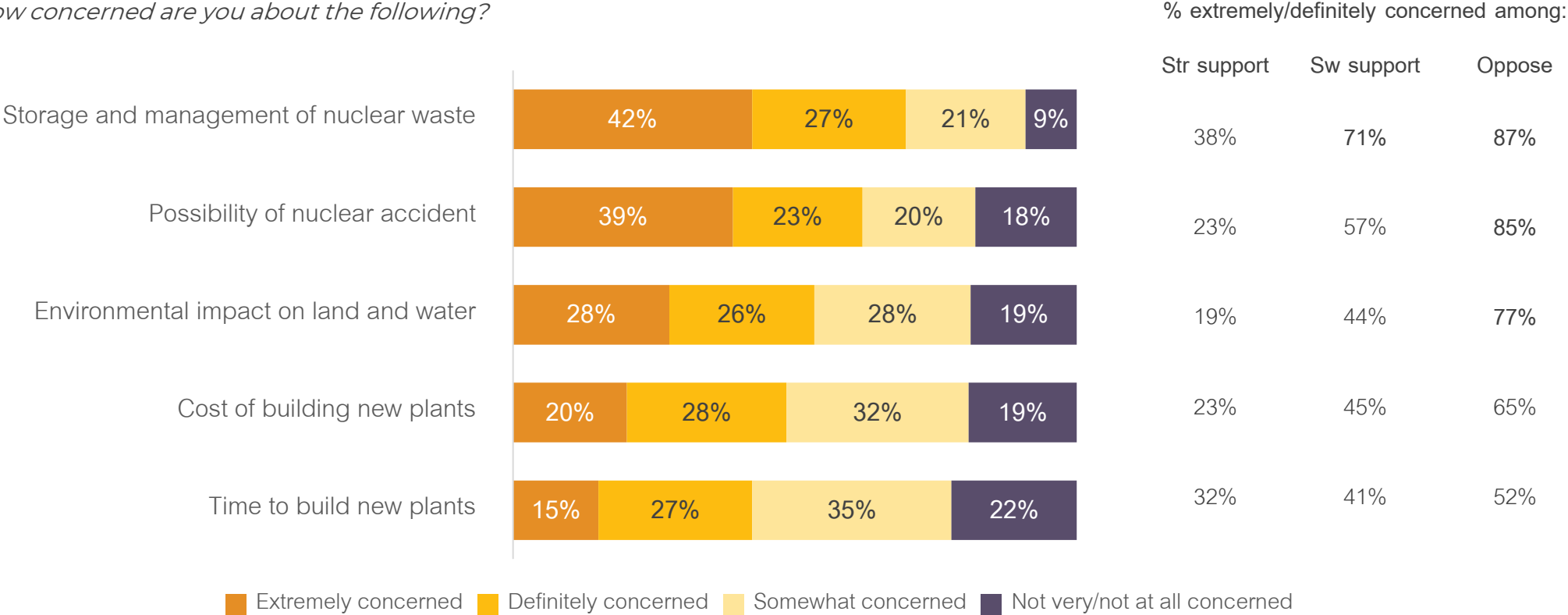
*Q25 In fact, nuclear is the second-largest source of low carbon electricity in Canada, after hydroelectricity. Nuclear power is also a more constant electricity source than renewables, which require backup storage to provide reliable electricity when there is no wind or sun. Knowing that, and thinking about what Canada needs to do to meet its energy needs without using fossil fuels, which of the following best represents your view?*



# Overall Views | **Concerns about nuclear energy**

Although much of the current discussion surrounding nuclear is about the cost and timeliness of new plants, many in the public still approach the topic more emotionally through the lens of safety and security concerns. Those opposed to nuclear also express greater environmental concerns.

Q26-30 How concerned are you about the following?

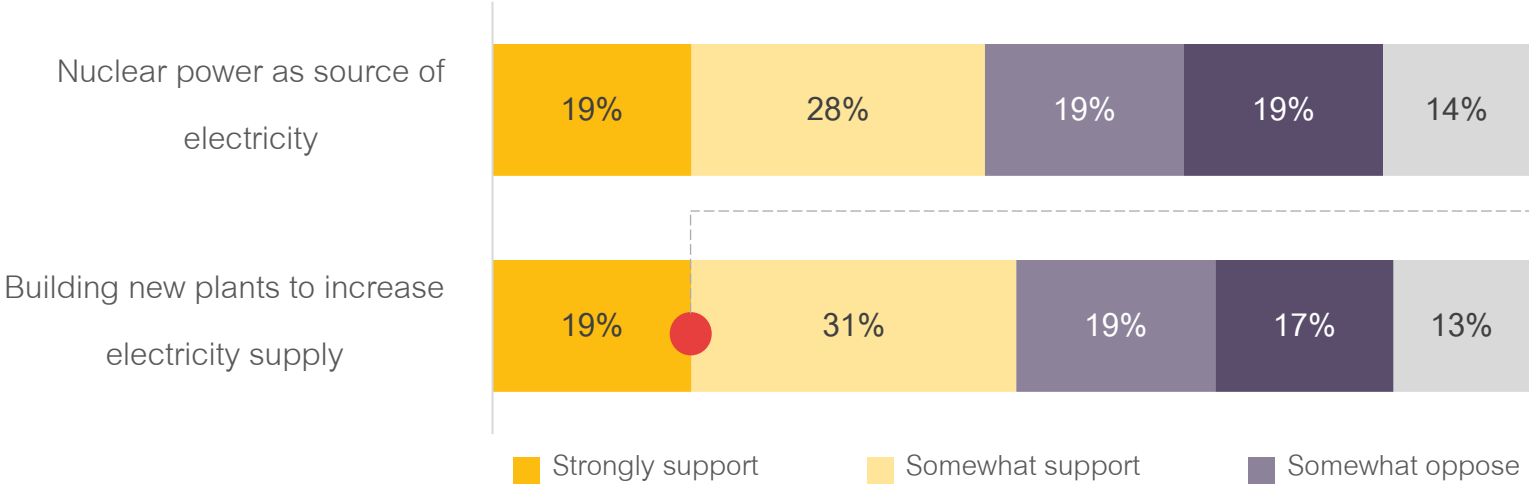




# Overall Views | Support for building new nuclear plants

Support for building new nuclear power plants in Canada tracks back to overall support for nuclear as a source of electricity.

Q31 Do you support or oppose building new nuclear power plants in Canada to increase electricity supply?



More likely to support (either strongly or somewhat):  
 SK (64%), AB (63%), ON (62%)  
 Men (64%), 60+ (56%)  
 University grads (57%), Income \$100K+ (59%)  
 Strongly support nuclear energy overall (71%)

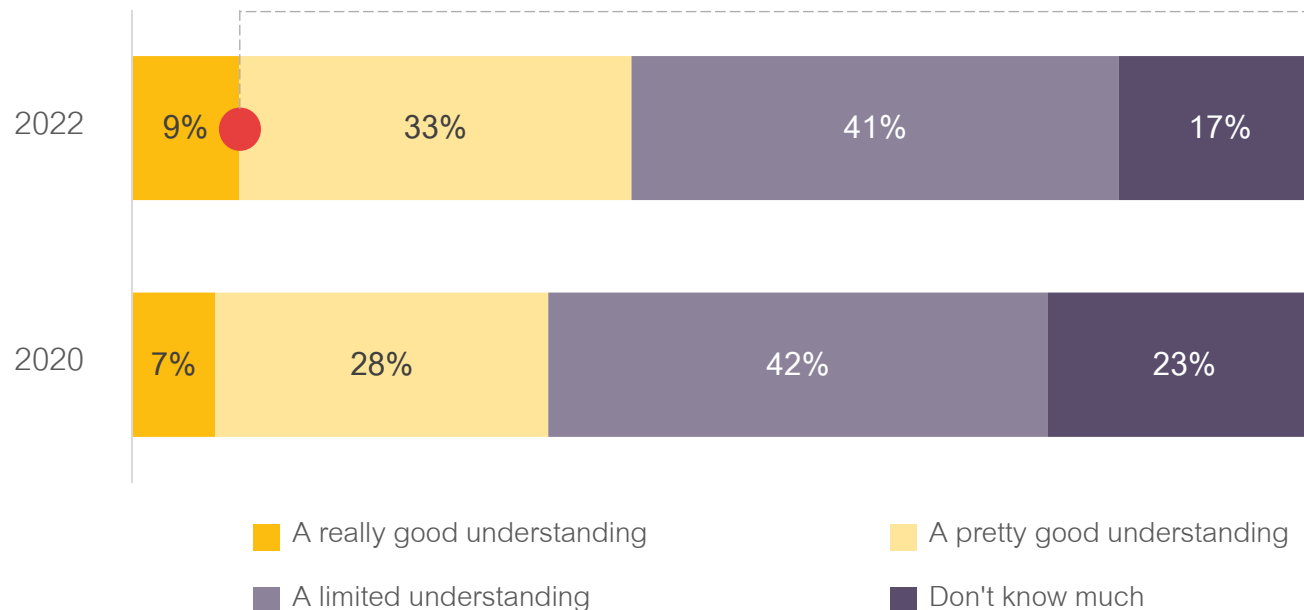
In contrast, those who somewhat support nuclear power overall are moderately in support of new builds (15% strongly and 64% somewhat).

# KNOWLEDGE AND INFORMATION SOURCES

# Knowledge | **Self-rated knowledge about nuclear power**

A majority of Canadians (58%) don't feel particularly well-informed about nuclear power. The minority who consider themselves knowledgeable (42%) is higher than in 2020, but this may be because the question was asked later in the survey after more information had been provided.

*Q32 Do you feel you have a really good understanding, a pretty good understanding, a limited understanding or would you say you don't know much about nuclear power?*



More likely to have a really or pretty good understanding:

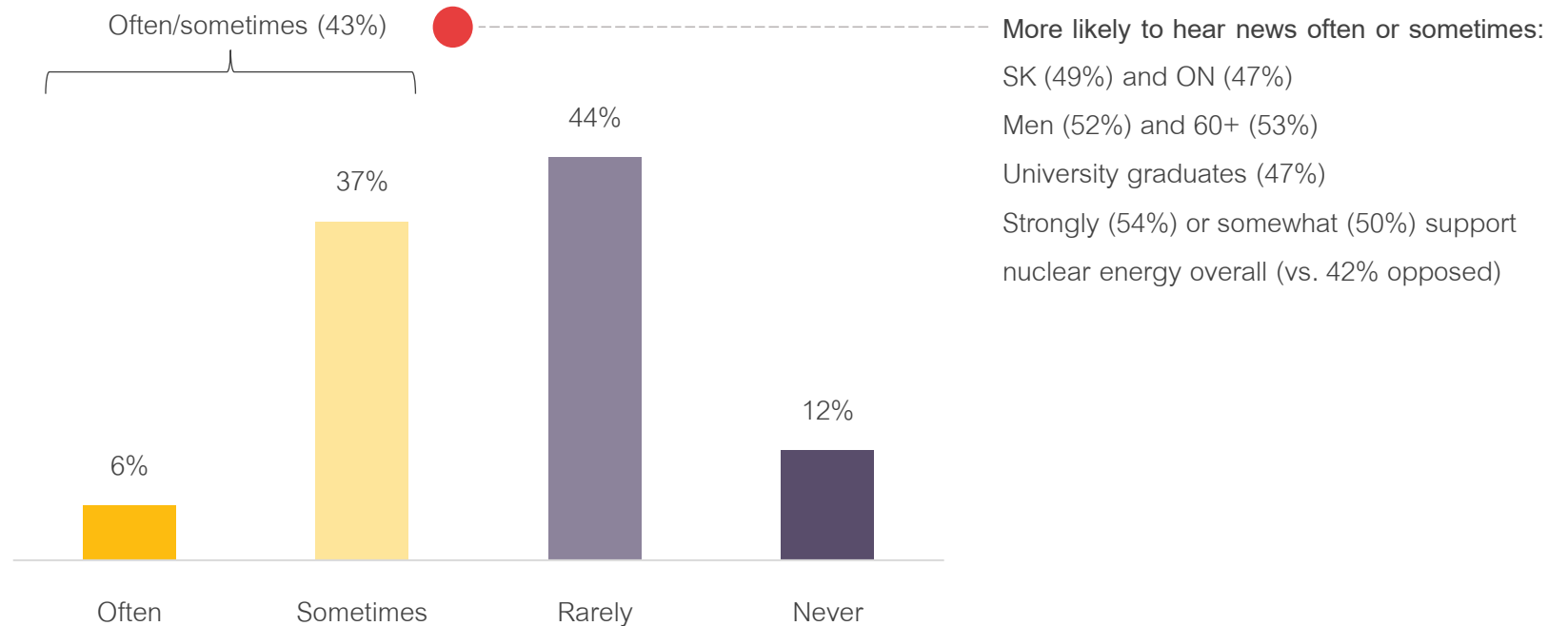
- QC (51%)
- Men (60%, vs. 25% women)
- University grads (47%), Income \$100K+ (50%)
- Strongly support nuclear energy overall (70%, vs. 44% somewhat support and 39% opposed)

Source of 2020 data is Abacus poll for CNA

# Knowledge | **Awareness of news about nuclear**

Fewer than half of Canadians (43%) recall hearing news about nuclear power somewhat regularly (often or sometimes); the majority (56%) say it happens rarely or never. This measure can be tracked to see if it increases with future events or announcements.

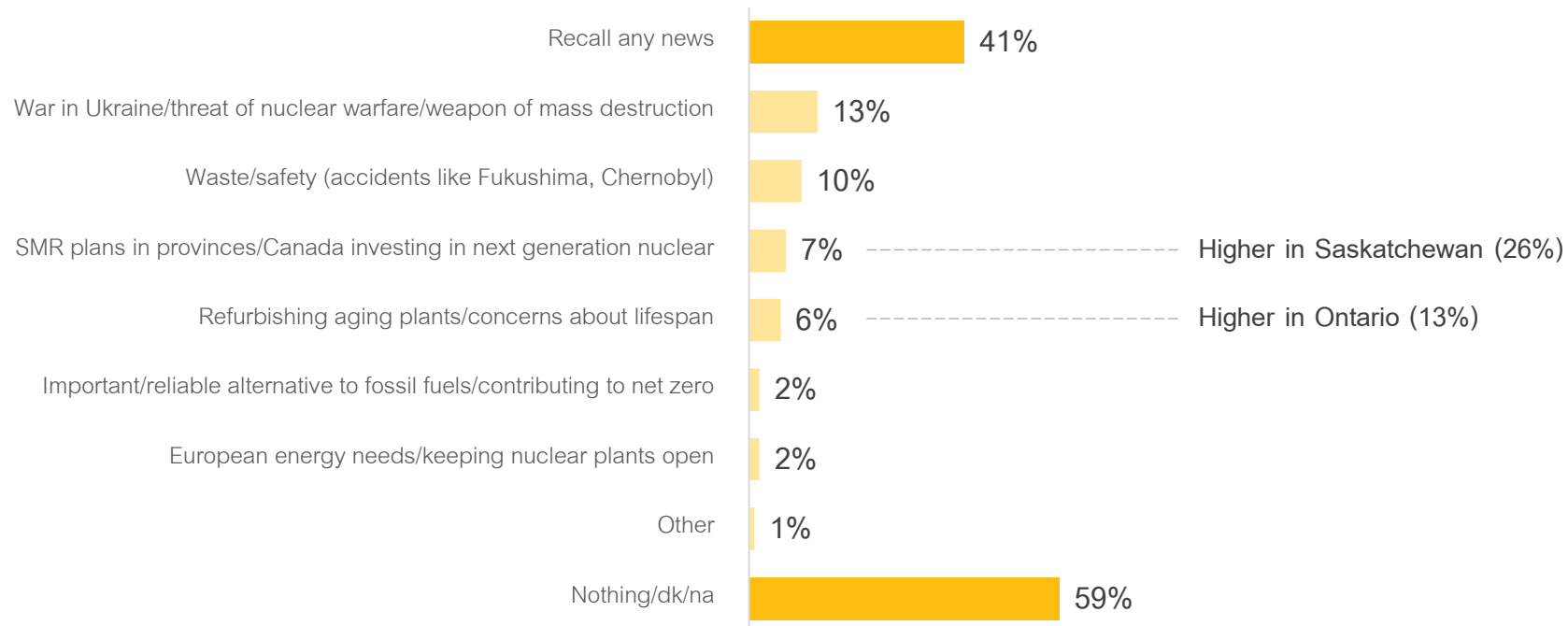
Q33 How often do you see, hear or read anything in the news about nuclear power?



# Knowledge | **Recall of recent news about nuclear**

Four in ten Canadians can recall specific news they have heard about nuclear power. However, nuclear in the context of war and accidents outweighs recall of SMR innovation and news about nuclear's contribution to net zero – with the notable exception of Saskatchewan.

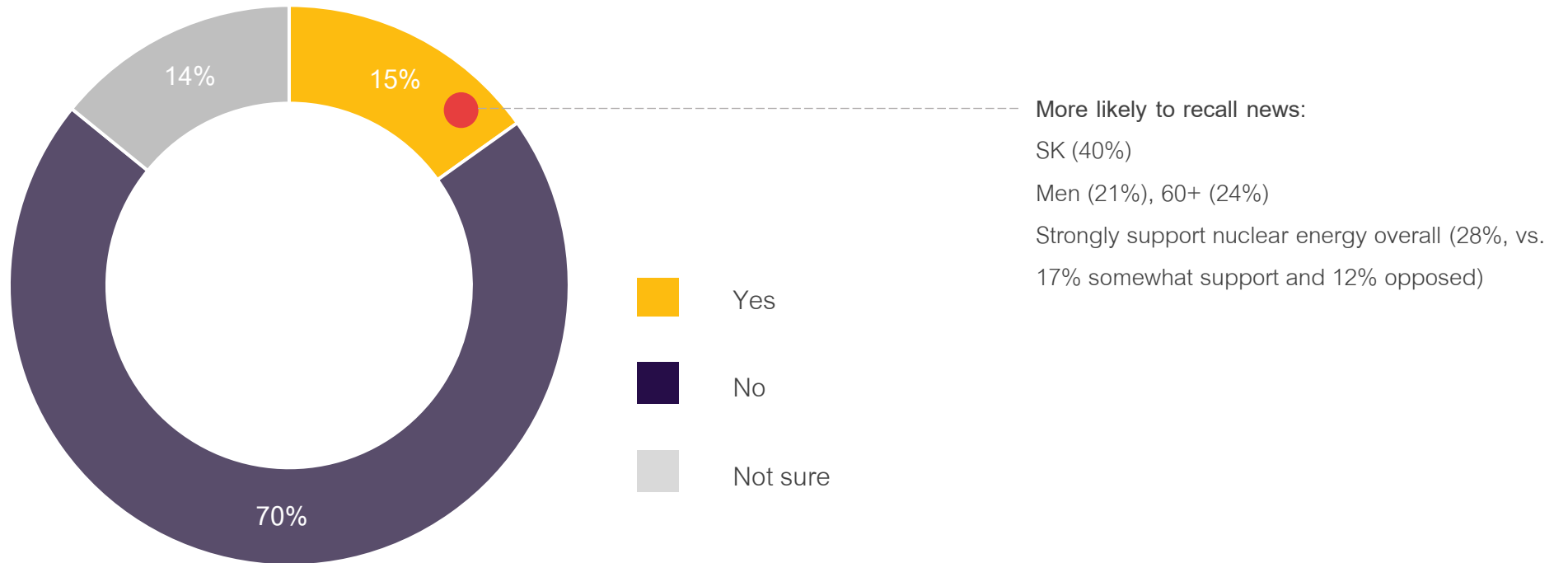
Q34 What news, if any, have you seen, heard or read recently about nuclear power?



# Knowledge | **Recall of news about new nuclear projects**

Fifteen percent of Canadians, but four in ten in Saskatchewan, have heard about newly proposed nuclear power projects for Canada.

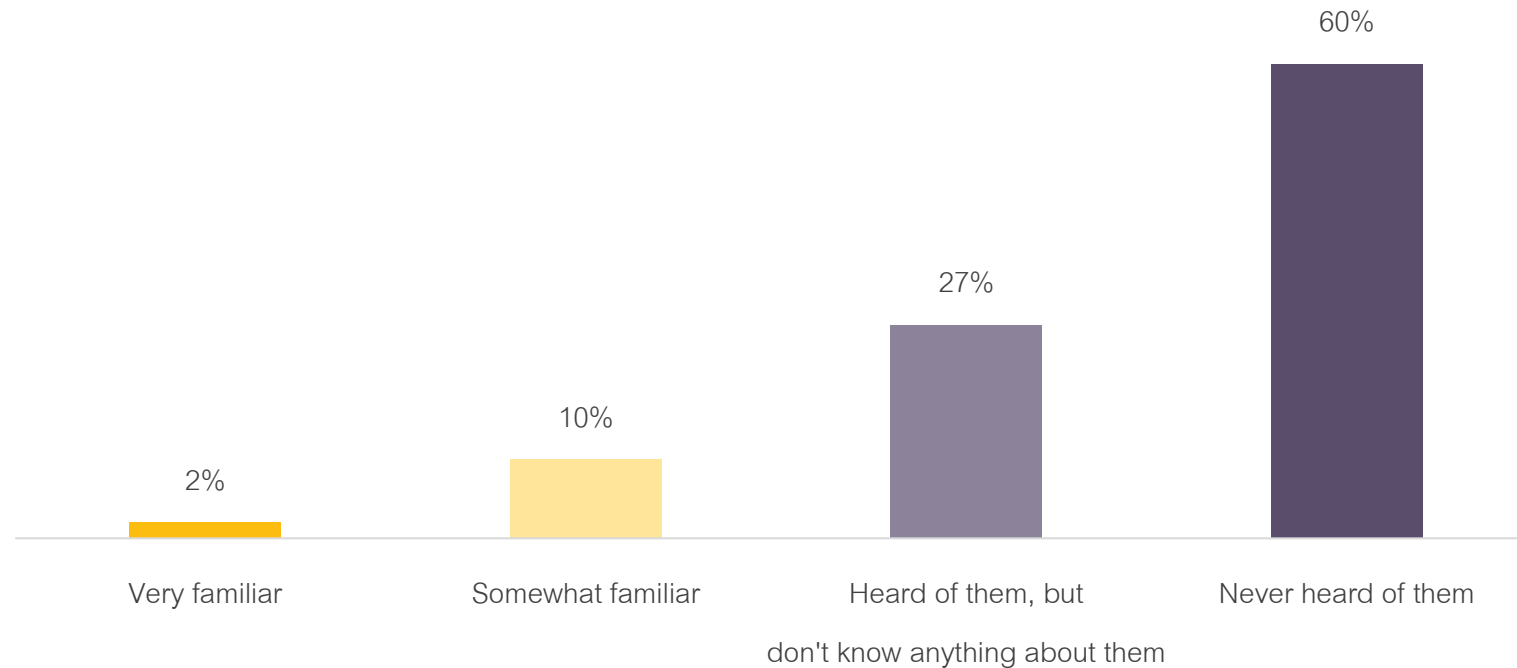
Q35 To confirm, have you seen, heard or read anything about newly proposed nuclear power projects in Canada?



# Knowledge | **Familiarity with SMRs**

There is very limited familiarity with SMRs, with six in ten who have never heard of them and another quarter who have heard of them, but don't know anything about them.

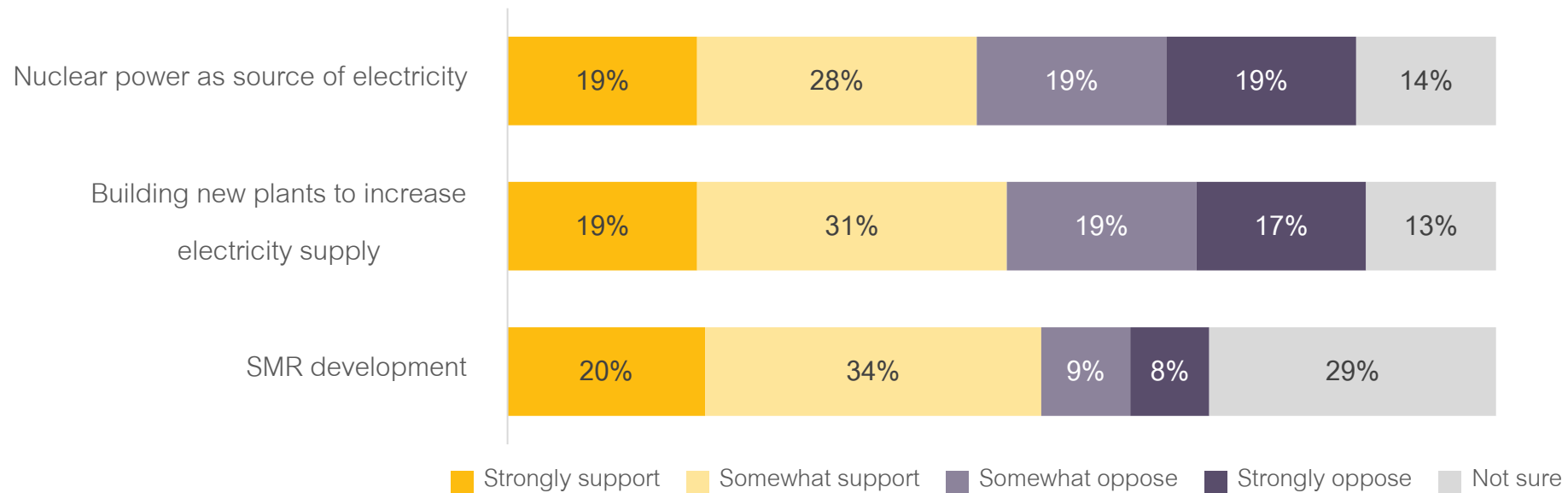
Q36 How familiar are you with Small Modular Reactors or SMRs?



# Knowledge | Support for SMR development

Once again, the level of support for SMR development connects back to overall support for nuclear, but notably, some opponents instead become uncertain (suggesting possible openness to the idea).

*Q37 Small Modular Reactors (SMRs) are an emerging area of nuclear energy innovation, in Canada and around the world. SMRs have a smaller footprint that is well suited to rural and smaller communities; are more affordable than large reactors because they can be prefabricated in factories and installed on site; and are designed for enhanced safety. Do you support or oppose SMR development?*

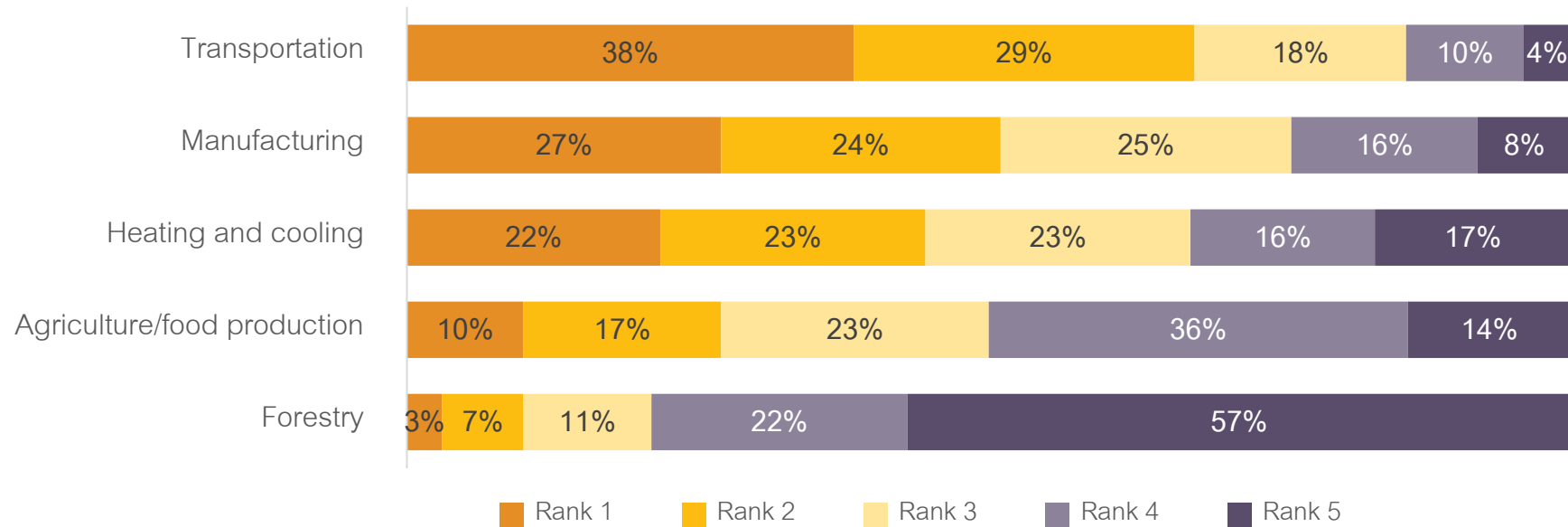




# Knowledge | Perceptions of sector use of fossil fuels

Canadians rank transportation as the top consumer of fossil fuels, ahead of manufacturing, likely reflecting the strong focus on electric vehicles. .

Q56 Please rank order the following sectors according to how much of Canada's fossil fuel use they account for, from the greatest use of fossil fuels (#1) to the least (#5)?

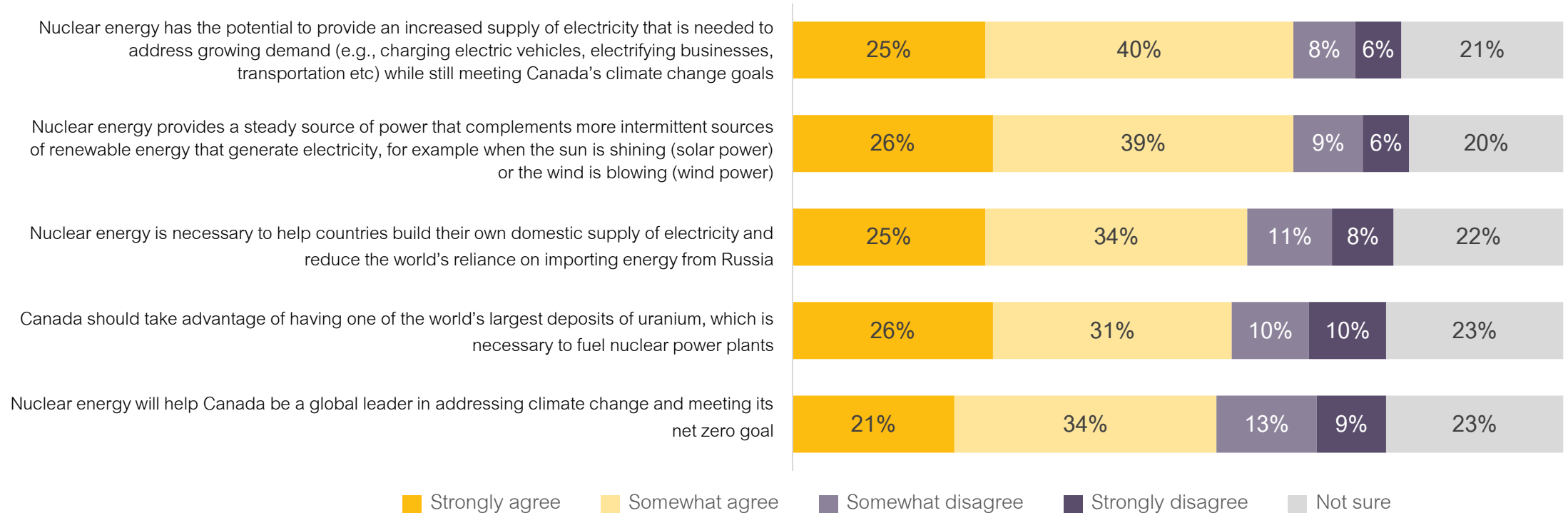


# MESSAGING AND TRUSTED SOURCES

# Messaging | **Agreement with messaging**

Reactions to potential messages are largely uniform. There is a slight preference for messages that address supply and reliability; preference is lowest about Canada playing a leadership role on climate change. Moreover, none seems to stand out among opponents or those with more modest support for nuclear.

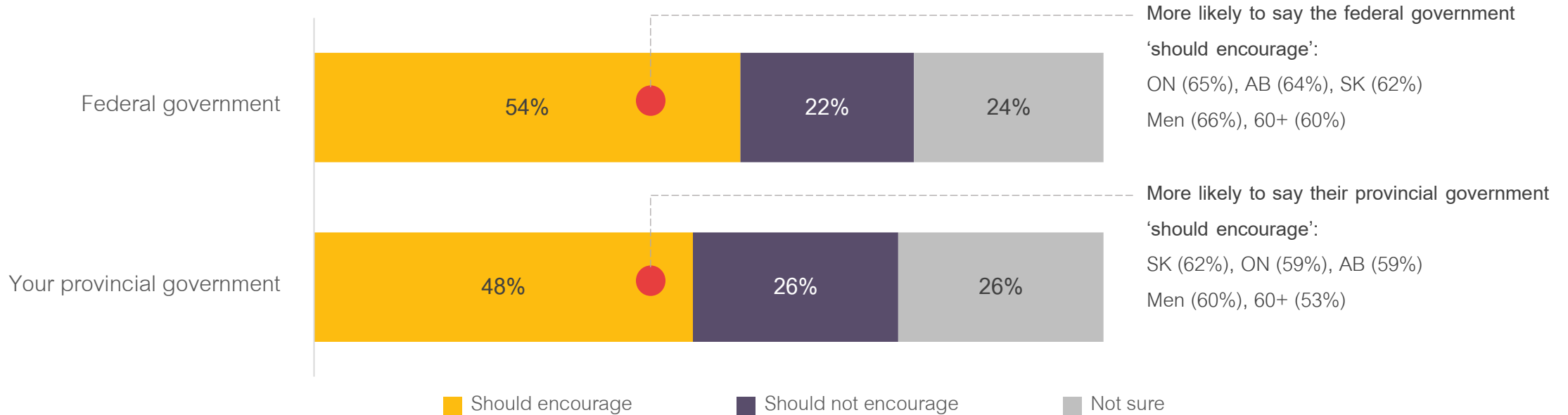
Q38-42 Do you agree or disagree with each of the following statements, or do you not know enough to say?



# Messaging | **Role of government in development**

A slim majority of Canadians believe the federal government should actively encourage the development of nuclear energy; there is marginally less support for active involvement from provincial governments. Residents of SK, AB and ON are most interested in government support (at both levels) for nuclear.

*Q43-44 Do you think each of the following should or should not actively encourage the development of nuclear energy, through things like tax credits and investments in new technology?*

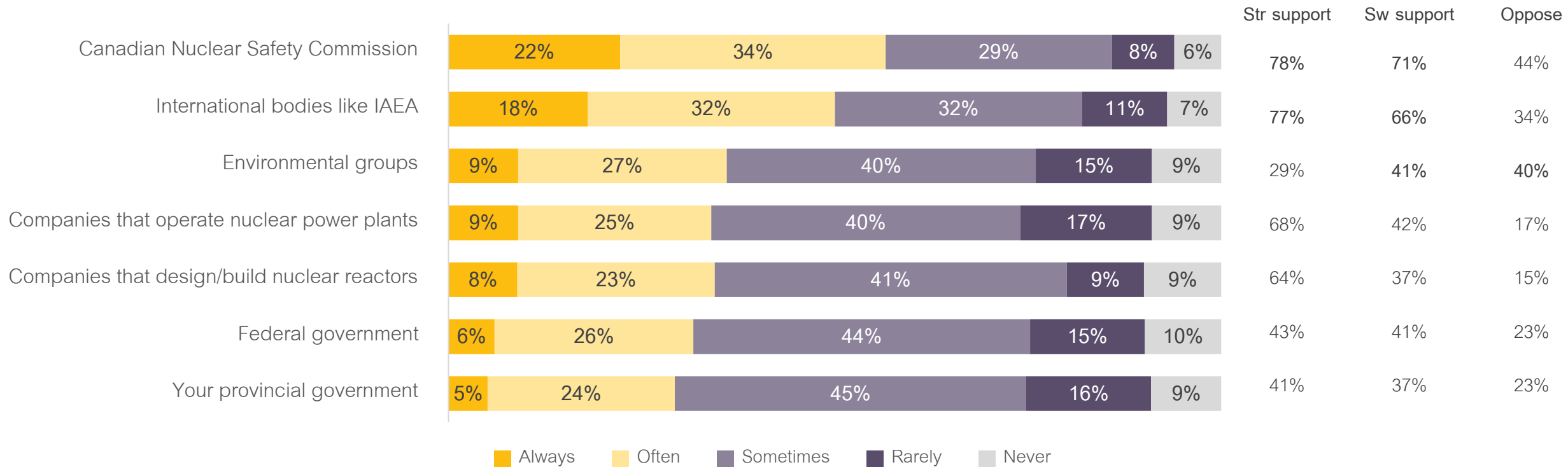


# Messaging | Trust in information sources

Canadians express a limited amount of trust in all information sources, but tend to favour Canada's regulator and the IAEA (although few are likely to have previously been aware of them). There are mixed views about eNGOs as a source, but they are more widely trusted by those opposed to nuclear (40%) or who only moderately support it (41%).

Q45-51 How often do you think you can trust the following to provide you with reliable information about nuclear power?

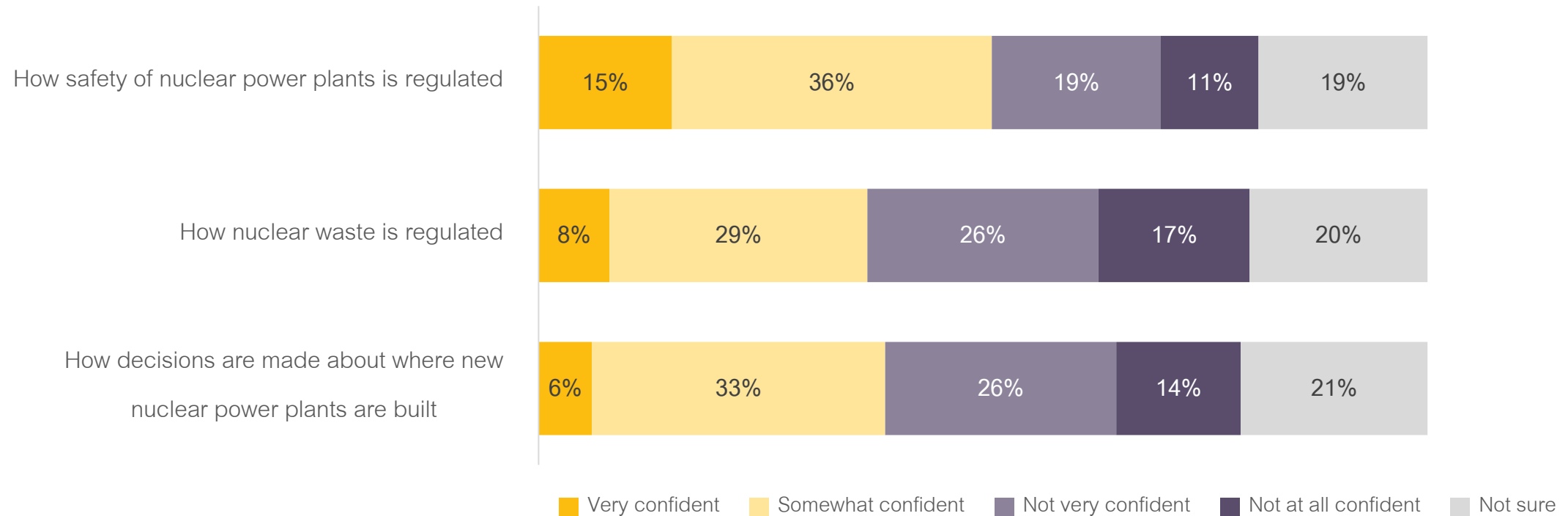
% always/often among:



# Messaging | Confidence in nuclear regulation

Half of Canadians are confident in the regulation of nuclear power plants. However, there is limited confidence in how nuclear waste is regulated (37%), echoing concerns expressed earlier in the survey about nuclear waste, and about decisions about the location of new nuclear plants (39%).

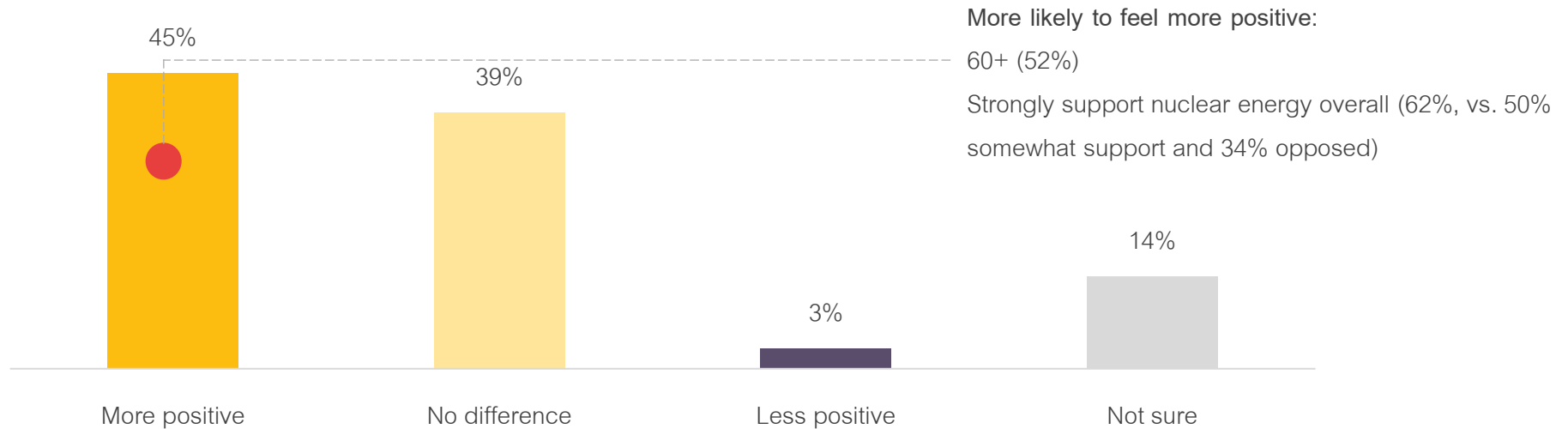
Q52-54 How confident are you about each of the following in Canada?



# Messaging | **Impact of medical innovations on views**

Almost half of Canadians, and even one-third of opponents to nuclear energy, feel more positive about nuclear power upon hearing about its uses for medical innovation. Women (44%) – who consistently trail men in support for nuclear throughout this survey - are as likely as men (46%) to feel better about nuclear after learning this information.

*Q55 In addition to energy, nuclear power is a source of medical innovation, producing medical isotopes used to diagnose and treat cancer patients and to sterilize personal protective equipment (e.g., gowns, gloves, masks) used in the COVID-19 response. Does this make you more or less positive about nuclear power, or does it make no real difference?*



# SEGMENT PROFILES



# Key findings

## Saskatchewan



**In 2022, the government of Saskatchewan announced plans to bring nuclear power to the province by building SMRs, to help the transition to a low-carbon energy grid. Within this context, Saskatchewan residents stand out as notably more aware and supportive of such projects, and less concerned about potential risks, than other Canadians.**

**Awareness:** Saskatchewan residents are more familiar than other Canadians about SMRs in general as well as about recent announcements about new nuclear projects, suggesting news content has broken through. Nonetheless, there is still room for improvement in awareness.

**Attitudes:** Saskatchewan residents consistently express more favourable attitudes towards nuclear power, on par with Ontario and Alberta, and ahead of a second tier of BC, Manitoba and the Atlantic provinces (note: New Brunswick was not broken out separately), followed by Quebec (with consistently lowest support).

**Concern:** Notably, Saskatchewan residents are the least concerned about potential risks in the form of nuclear waste management, accidents and environmental impacts, even compared to Ontario and Alberta. While we must be careful to ascribe causation to this pattern (due to a lack of trend data), the fact that concerns are slightly lower than in Ontario and Alberta (despite similarly high levels of support) suggests recent public discussions in Saskatchewan about nuclear power and SMRs may have played a role.



# Saskatchewan | **Key findings**

Saskatchewan residents are similar to Ontarians and Albertans in their support for nuclear power, but stand out as notably more familiar of recent news about nuclear projects and somewhat less concerned about potential risks.

Key metrics	Canada	BC	AB	SK	MB	ON	QC	ATL
<b>Awareness</b>								
Recall recent news about new nuclear power projects (Q35)	15%	8%	15%	<b>40%</b>	6%	20%	10%	15%
Very or somewhat familiar with SMRs (Q36)	12%	11%	16%	<b>26%</b>	10%	15%	5%	11%
<b>Attitudes</b>								
Support nuclear for electricity in Canada – top 2 box (Q9)	47%	38%	<b>56%</b>	<b>61%</b>	47%	<b>62%</b>	23%	46%
Nuclear should play major role in net zero in Canada (Q23)	33%	27%	<b>41%</b>	<b>43%</b>	29%	<b>44%</b>	14%	30%
Support building new nuclear plants to increase electricity supply – top 2 box (Q31)	51%	48%	<b>63%</b>	<b>64%</b>	52%	<b>62%</b>	23%	53%
Provincial government should encourage development of nuclear (Q43)	48%	41%	<b>59%</b>	<b>62%</b>	44%	<b>59%</b>	28%	44%
<b>Concern – top 2 box (extremely or definitely) (Q28)</b>								
Storage and management of nuclear waste	70%	74%	64%	<b>53%</b>	70%	65%	79%	74%
Possibility of a nuclear accident	62%	68%	56%	<b>48%</b>	65%	55%	75%	68%
Environmental impact of nuclear energy on land and water	53%	58%	50%	<b>41%</b>	56%	48%	62%	58%

# Key findings

## Women



**Higher education is correlated with greater support for nuclear among both women and men. Nonetheless, women at all levels of education are consistently less supportive of nuclear than are men – indicating other factors at play. For instance, women with a university education have equally strong concerns about potential risks of nuclear as do women with less education, but stronger relative support; education may be a potential mitigating factor influencing their worldviews related to trust, control and confidence.**

**Overall gender patterns.** Across almost every measure, women consistently express less favourable attitudes towards nuclear power than do men. Much of this is due to lack of knowledge (or a lack of confidence in that knowledge): three-quarters (75%) of women say they have a poor understanding (i.e., ‘a limited understanding’ or ‘don’t know much’), compared to four in ten men, resulting in a relatively larger proportion of women versus men who do not feel comfortable expressing an opinion for most questions. However, support for nuclear power is consistently lower among women than men, at all education levels (i.e., even among those with higher education). Thus, lower support is not only a function of (less) knowledge (or education) but also of more negative attitudes: women express less support than do men for several electricity sources (including nuclear, hydroelectric power, natural gas and geothermal), but express elevated opposition only for nuclear (45%, vs. 31% for men) – while for the other electricity sources, they instead express greater uncertainty (i.e., “not sure”).

The one consistent measure for both genders is the proportion who feel more positive towards nuclear after hearing about its uses for medical purposes (44% for women and 46% for men).

**Impact of education:** Among women, higher education correlates with greater support for and knowledge about nuclear power. Interestingly, providing information about nuclear’s low-carbon status and reliability in relation to renewables levels the playing field (i.e., the proportion acknowledging the value of using nuclear alongside renewables becomes similar regardless of education level). The fact that women with more education express greater support for nuclear despite equally strong concerns about the potential risks (i.e., waste, accidents, environmental impacts) suggests that education is a mitigating factor on how they view the world (their values) – that is, potentially influencing their degree of trust in the society and those in positions of responsibility (such as those delegated with regulating nuclear safety).

# Women | Key findings



Women are consistently less supportive than men of several sources of electricity, in large part due to greater uncertainty; notably, there is only elevated opposition to nuclear power.

Q9-15 Do you support or oppose each of the following as a way of providing electricity for Canada?

Support for electricity sources	Support		Oppose		Not sure	
	Women	Men	Women	Men	Women	Men
Nuclear power	32%	63%	45%	31%	23%	5%
Hydroelectric	85%	94%	3%	3%	12%	2%
Geothermal and biomass	52%	78%	8%	8%	40%	14%
Natural gas	64%	76%	21%	20%	15%	4%

Note: there are no statistically significant gender differences in level of support for other sources included in this question: wind, solar, coal

# Women | Key findings (continued)



Among women, support for nuclear increases with education (but remains lower than men at all education levels). However, education does not alleviate degree of concern – one possibility is that it instead plays a mitigating factor by increasing trust in authority, including those responsible for nuclear safety.

	Women			Men		
	HS or less	College	University	HS or less	College	University
<b>Attitudes</b>						
Support nuclear for electricity in Canada – top 2 box (Q9)	23%	30%	37%	55%	59%	69%
Nuclear should play major or minor role in net zero in Canada (Q23)	36%	48%	61%			
Canada should use nuclear alongside renewables to meet energy needs (Q25)*	46%	45%	55%			
<b>Concern – top 2 box (extremely or definitely) (Q28)</b>						
Storage and management of nuclear waste	68%	75%	78%			
Possibility of a nuclear accident	70%	73%	71%			
Environmental impact of nuclear energy on land and water	62%	62%	63%			
<b>Trust to provide reliable information about nuclear power</b>						
International bodies like IAEA	28%	37%	48%			
Canadian Nuclear Safety Association (federal regulator)	41%	48%	55%			

*\* Question was prefaced with information about of nuclear's low-carbon status and reliability compared to renewables*

# Thank you.

**ENVIRONICS**  
RESEARCH

